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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/652,118	08/28/2003	Hiroyuki Yumoto	Q190-US1	1839
31815	7590	05/27/2005	EXAMINER	
MARY ELIZABETH BUSH QUALLION LLC P.O. BOX 923127 SYLMAR, CA 91392-3127			WEINER, LAURA S	
			ART UNIT	PAPER NUMBER
			1745	

DATE MAILED: 05/27/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/652,118

Applicant(s)

YUMOTO ET AL.

Examiner

Laura S. Weiner

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 March 2005.
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-40 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1-40 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments with respect to claims 1-40 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 112

2. Claims 5, 37-38 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 5 is still rejected because it is unclear how the massive ball-shaped graphite particles, the carbon fibers and graphite flakes can each have the same average particle size of 10-35 um. It would be clearer if the claim instead claimed, "wherein the ... particles, carbon fibers and graphite flakes together have an average" or "wherein the carbonaceous material has an average".

Claims 37-38 are rejected because these claims claim a Trademark name, MAG D. Trademark names cannot be cited in claims.

Claim Rejections - 35 USC § 103

3. Claims 1-40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nagata et al. (US 2004/0043293) in view of Applicant's admitted prior art as evidenced by the section, "Anode Material for Lithium Ion Batteries" located on Hitachi Chemical's website.

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Nagata et al. teaches on page 2, [0027], that Figure 2 shows a carbonaceous mixture (40) of the present invention. It preferably contains hard spheres (42), carbon fibers (44) and graphite flakes (46). Preferably, the hard spheres, carbon fibers and graphite flakes have an average particle size of less than 40 μm and occur in a ratio of approximately 70% hard spheres, 22.5% carbon fibers and 7.5% graphite flakes.

Nagata et al. teaches on page 2, [0028], that hard spheres (42) have an average particle size of preferably less than 40 μm and more preferably 10-35 μm *[inherently the graphite particles have smaller graphite particles because the particle size ranges from 10-35 μm]*. Hard spheres (42) may comprise mesocarbon microbeads. Alternately or additionally these particles may have a rigid surface layer (43), which may comprise hard carbon. Hard spheres (42) provide structural support to the preferred carbonaceous composition. This structure support helps maintain the porosity of the mixture which is important for allowing the electrolyte to contact the surface of the carbon and to react with it. Nagata et al. teaches on page 3, [0034-0036], a negative electrode comprising a mixture of shapes of carbon particles comprising 0-80% spheres, 0-80% carbon fibers and 0-30% graphite flakes; 0-30% CMC binder and 0-30% SBR binder and water are mixed together to form a slurry which is applied to a titanium foil substrate. Nagata et al. teaches on page 4, claims 13-25, a battery comprising an hermetically sealed case, a negative electrode, a lithium metal oxide positive electrode and a separator.

Nagata et al. teaches the claimed invention as explained above but does not teach that the graphite particles are arranged such that ball shaped graphite particles are isotropic.

Applicants teach on page 6, [0025], that the massive ball-shaped graphite particles are made up of smaller graphite particles that are synthesized together into an unorganized isotropic ball-shaped structure. Since the smaller graphite particles are unorganized, the massive graphite particles are very porous, and there are more paths through with lithium can diffuse. Applicant's continue to admit that Massive ball-shaped graphite particles 42 are available from Hitachi Chemical under the trade name MAG D. These particles help provide porosity to the carbonaceous mixture, which is important for allowing the electrolyte to contact the surface of the carbon and to react with it.

The Hitachi Chemical's website teaches that the anode material is artificial graphite with many internal pores. These pores promote smooth intercalation of lithium ions and allow as many ions as possible be stored in each particle. This unique particle structure realizes superb performance and high capacity. *[As can be seen by the figure, the graphite material is "isotropic" having similar properties in every direction].*

It would have been obvious to one having ordinary skill in the art at the time the invention was made to use graphite particles (MAG D) taught by Hitachi Chemical as admitted by Applicants in place of the mesocarbon microbeads because Applicant admits that it is known to purchase, buy and are available from Hitachi Chemical. *[Hitachi Chemical created the graphite particles, MAG D before the invention was invented because MAG D is known and stated in the specification. The novelty of the*

invention is that the graphite particles includes smaller graphite particles which are arranged to be isotropic but this material is already known].

4. Claims 1-40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nagata et al. (US 2004/0043293) in view of Machida et al. (5,547,654).

Nagata et al. teaches on page 2, [0027], that Figure 2 shows a carbonaceous mixture (40) of the present invention. It preferably contains hard spheres (42), carbon fibers (44) and graphite flakes (46). Preferably, the hard spheres, carbon fibers and graphite flakes have an average particle size of less than 40 um and occur in a ratio of approximately 70% hard spheres, 22.5% carbon fibers and 7.5% graphite flakes.

Nagata et al. teaches on page 2, [0028], that hard spheres (42) have an average particle size of preferably less than 40 um and more preferably 10-35 um *[inherently the graphite particles have smaller graphite particles because the particle size ranges from 10-35 um]*. Hard spheres (42) may comprise mesocarbon microbeads. Alternately or additionally these particles may have a rigid surface layer (43), which may comprise hard carbon, Hard spheres (42) provide structural support to the preferred carbonaceous composition. This structure support helps maintain the porosity of the mixture which is important for allowing the electrolyte to contact the surface of the carbon and to react with it. Nagata et al. teaches on page 3, [0034-0036], a negative electrode comprising a mixture of shapes of carbon particles comprising 0-80% spheres, 0-80% carbon fibers and 0-30% graphite flakes; 0-30% CMC binder and 0-

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30% SBR binder and water are mixed together to form a slurry which is applied to a titanium foil substrate. Nagata et al. teaches on page 4, claims 13-25, a battery comprising an hermetically sealed case, a negative electrode, a lithium metal oxide positive electrode and a separator.

Nagata et al. teaches the claimed invention as explained above but does not teach that the graphite particles are arranged such that ball shaped graphite particles are isotropic.

Machida et al. teaches on page 5, lines 31-45, that through such adequate heat treatment, a mesophase pitch can be modified into self-adhesive carbonaceous grains exhibiting high performance as a starting material for high density isotropic carbon artifacts.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to use mesophase pitch that can be manufactured to be isotropic because Machida et al. teaches that this is known when the temperature conditions are changed.

Conclusion

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).


A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Laura S Weiner whose telephone number is 571-272-1294. The examiner can normally be reached on M-F (6:30-4:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read 'Laura S. Weiner', is positioned above the printed name.

Laura S Weiner
Primary Examiner
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May 23, 2005